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Title : Blowing Nozzle

### Claims

1. A blowing nozzle that includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and that is viewed from a front surface of the air blowing port to have a convex shape toward outside.
2. A blowing nozzle that includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and in which a section of the air blowing port is slit-shaped to have a larger width toward its center.
3. A blowing nozzle that includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and in which a section of the air blowing port is slit-shaped and grids are arranged to divide the air blowing port into a plurality of parts.

4. A blowing nozzle that includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and an auxiliary plate arranged before or behind the air blowing port to cause effects.

5. The blowing nozzle according to claim 4, wherein the air blowing port is protruded while covered by part of the auxiliary plate.

6. The blowing nozzle according to claim 4 or 5, wherein an auxiliary plate is arranged only on the opposite side of a hand inserting direction with respect to the air blowing port.

7. A blowing nozzle that includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and auxiliary plates arranged in a front-back direction and a lateral direction of the air blowing port to cause effects.

8. The blowing nozzle according to claim 7, wherein the air blowing port through which, after generated air current is collected, high-speed wind is blown away by the blowing unit including the high-pressure centrifugal air blower is arranged, the auxiliary plates are arranged in the front-back direction and the lateral direction of the air blowing port to cause effects, and another set of auxiliary plates are arranged to have a certain space outside the auxiliary plates arranged in the front-back direction and the lateral

direction of the air blowing port.

9. The blowing nozzle according to claim 7 or 8, wherein the auxiliary plates arranged in the front-back direction and the lateral direction of the air blowing port are protruded downward from tip of the air blowing port.

10. A blowing nozzle that includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and an auxiliary plate covering a front surface of the air blowing port and a front surface of a front case.

11. A blowing nozzle that includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and a return plate that has holes at part of a hand drying chamber.

12. A blowing nozzle that includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and an auxiliary plate arranged in a front-back direction or a lateral direction of the air blowing port to cause effects, the air blowing port and the auxiliary plate being integrally formed.

13. The blowing nozzle according to claim 4 or 5, wherein a slit is formed

at part of the auxiliary plate.

14. The blowing nozzle according to claim 4 or 5, wherein a section of the auxiliary plate is shaped to be a wing.

15. The blowing nozzle according to claim 4 or 5, wherein a convex portion is arranged on an edge surface of the auxiliary plate on its air blowing side.

16. The blowing nozzle according to claim 4, 5, or 7, wherein part or the whole of the auxiliary plate is made of acoustic absorbents.

17. The blowing nozzle according to claim 1, 2, 3, 4, 5, or 7, wherein minute grooves are arranged on a wall surface of the air blowing port.

[0006] The present invention is made to solve the conventional problems. It is an object of the present invention to cause effects near the nozzle, increase an amount of wind without increasing speed of wind more than needed, and reduce drying time and noise.

[0007] It is another object to manufacture blowing nozzles at low costs.

[0041]

[Best Mode for Carrying out the Invention] According to the present invention, it is possible to efficiently reduce drying time and noise through a blowing nozzle that has an air blowing port through which, after generated air current

is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower, that is viewed from a front surface of the air blowing port to have a convex toward outside, and through which wind is hit on the whole hands without increasing speed of wind more than needed when hands are inserted.

[0042] A blowing nozzle includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower, and the air blowing port is slit-shaped in section to have a larger width toward its center. Drying time can be reduced by sending high-speed wind, a noise generating frequency is dispersed based on a change of speed distribution of high-speed wind, and a noise level can be reduced.

[0043] A blowing nozzle includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower, the air blowing port has a slit shape in section, and grids are arranged to divide the air blowing port into a plurality of parts. Drying time can be reduced by sending high-speed wind and a noise level can be reduced by correcting disturbance of high-speed wind at an outlet.

[0044] A blowing nozzle includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower, and an auxiliary plate is arranged before or behind the air blowing port to cause effects. When high-speed wind is sent and the air blowing port is small in width, speed of high-speed wind can be increased, however, an amount of wind is

decreased. Therefore, to prevent drying time from being increased, the auxiliary plate causes effects, so that speed of wind is increased and drying time can be furthermore reduced.

[0045] The blowing nozzle is formed in such a manner that its air blowing port is protruded while covered by the auxiliary plate. When high-speed wind is sent and the air blowing port is small in width, the speed of high-speed wind can be increased, however, an amount of wind is decreased. Therefore, to prevent drying time from being increased, the auxiliary plate causes effects and speed of wind is increased. This makes it possible to moreover reduce drying time and prevent increase of noise that is caused by increase of wind speed based on acoustic isolation effects of an auxiliary plate.

[0046] The blowing nozzle has an auxiliary plate arranged only on the opposite side of a hand inserting direction with respect to the air blowing port in a hand drying chamber. When high-speed wind is sent and the air blowing port is small in width, the speed of high-speed wind can be increased, however, an amount of wind is decreased. Therefore, to prevent drying time from being increased, the auxiliary plate causes effects, so that an amount of wind is increased. This makes it possible to furthermore reduce drying time, increase circulation wind in the hand drying chamber, cause effects to increase the amount of wind, and moreover reduce drying time.

[0047] A blowing nozzle includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and auxiliary plates arranged in a front-back direction and a lateral direction of the air blowing port to cause effects. It is possible to obtain a large amount of wind

by causing effects from a wide range and reduce drying time.

[0048] The blowing nozzle includes the air blowing port through which, after generated air current is collected, high-speed wind is blown away by the blowing unit including the high-pressure centrifugal air blower, the auxiliary plates arranged in the front-back direction and the lateral direction of the air blowing port to cause effects, and another set of auxiliary plates arranged to have a certain space outside the auxiliary plates arranged in the front-back direction and the lateral direction of the air blowing port. It is possible to obtain a large amount of wind by causing effects from a wider range and significantly reduce drying time.

[0049] The blowing nozzle includes the auxiliary plates that are protruded downward from tip of the air blowing port in the front-back direction and the lateral direction. It is possible to prevent sound from being transmitted in the front-back direction and the lateral direction as well as to increase an amount of wind and reduce drying time.

[0050] A blowing nozzle includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and an auxiliary plate that covers a front surface of the air blowing port and a front surface of a front case. It is possible to increase an amount of wind, reduce drying time, and prevent noise on the front surface.

[0051] A blowing nozzle includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and a return plate that has holes at part of a hand drying chamber and that causes the same

effects as the auxiliary plate. It is possible to strengthen circulation current at a return portion based on induced wind, increase an amount of wind, and reduce drying time.

[0052] A blowing nozzle includes an air blowing port through which, after generated air current is collected, high-speed wind is blown away by a blowing unit including a high-pressure centrifugal air blower and auxiliary plates arranged in a front-back direction and a lateral direction of the air blowing port to cause effects, and the air blowing port and the auxiliary plates are integrally formed. It is possible to increase an amount of wind and reduce drying time in addition to inexpensive manufacturing costs.

[0053] The blowing nozzle includes a slit formed at part of the auxiliary plate. When high-speed wind is sent and the air blowing port is small in width, the speed of high-speed wind can be increased, however, an amount of wind is decreased. Therefore, to prevent drying time from being increased, the auxiliary plate causes effects and an amount of wind is increased. This makes it possible to furthermore reduce drying time and reduce disturbance caused by the auxiliary plate.

[0054] A section of the auxiliary plate is shaped to be a wing in the blowing nozzle. When high-speed wind is sent and the air blowing port is small in width, the speed of high-speed wind can be increased, however, an amount of wind is decreased. Therefore, to prevent drying time from being increased, the auxiliary plate causes effects and an amount of wind is increased. This makes it possible to furthermore reduce drying time and reduce disturbance caused by the auxiliary plate.

[0055] The blowing nozzle includes a convex arranged on an edge surface of



the auxiliary plate on its air blowing side. When high-speed wind is sent and the air blowing port is small in width, the speed of high-speed wind can be increased, however, an amount of wind is decreased. Therefore, to prevent drying time from being increased, the auxiliary plate causes effects and an amount of wind is increased. This makes it possible to furthermore reduce drying time and reduce disturbance caused by the auxiliary plate.

[0056] Acoustic absorbents are used as part or the whole of the auxiliary plate in the blowing nozzle. When high-speed wind is sent and the air blowing port is small in width, the speed of high-speed wind can be increased, however, an amount of wind is decreased. Therefore, to prevent drying time from being increased, the auxiliary plate causes effects and an amount of wind is increased. This makes it possible to furthermore reduce drying time and reduce noise caused by the auxiliary plate with sound absorbing effects.

[0057] The blowing nozzle includes minute grooves arranged on a wall surface of the air blowing port. When high-speed wind is sent and the air blowing port is small in width, the speed of high-speed wind can be increased, however, an amount of wind is decreased. Therefore, to prevent drying time from being increased, the auxiliary plate causes effects and an amount of wind is increased. This makes it possible to furthermore reduce drying time and reduce loss caused by the auxiliary plate.